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**(54) SMOKABLE ROD FOR A CIGARETTE****RAUCHBARE STANGE FÜR EINE ZIGARETTE****PARTIE TIGE A FUMER POUR CIGARETTE**

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(56) References cited:

<b>EP-A- 0 378 788</b>	<b>EP-A- 0 419 974</b>
<b>EP-A- 0 545 186</b>	<b>US-A- 4 716 913</b>
<b>US-A- 4 892 109</b>	<b>US-A- 4 986 287</b>
<b>US-A- 5 060 667</b>	

- **"New cigarette prototypes that heat instead of burn tobacco" 1988, R.J. REYNOLDS TOBACCO COMPANY, NORTH CAROLINA, XP002315325 page 43 - page 72**

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**EP 1 670 326 B1**

filler. The smoker can smoke the cigarette until for a desired number of puffs, but the smoker typically extinguishes the cigarette when the firecone of the burning smokable rod approaches the region occupied by the tipping paper. The cigarette produces an ash that is similar in certain regards to other traditional types of cigarettes that burn tobacco cut filler.

#### Example 12

**[0197]** A cigarette of the general type described previously with reference to Fig. 4 is provided. The cigarette has a total length of about 84 mm. The cigarette possesses a smokable rod having a length of about 57 mm and a filter element having a length of about 27 mm. When viewed end on, the cigarette has a generally circular cross-sectional shape. The circumference of the smokable rod is about 25 mm. The smokable rod possesses a single smokable blend. The outer wrapping material is a conventional type of wood pulp and calcium carbonate containing cigarette paper wrapper provided by Ecusta Corp. as R. J. Reynolds Tobacco Company Grade No. 456 cigarette paper.

**[0198]** The smokable material is a blend that incorporates the tobacco blend of components of an "American blend" and a cast sheet material incorporating glycerin. The cast sheet material is that type of cast sheet material described in Example 1. For the cigarette blend, sufficient cast sheet material is blended with the tobacco cut filler blend to provide a blend possessing about 12 percent glycerin, based on the dry weight of the total blend. A casing formulation of the type described in Example 10 is applied to a portion of the blend, and that cased portion is blended with DIET-type volume expanded flue-cured tobacco cut filler. The moisture content of the blend is about 12 percent to about 13 percent.

**[0199]** The filter element and tipping material for each cigarette are of the type set forth with in Example 10.

**[0200]** Cigarettes so described are manufactured using a cigarette maker supplied by Hauni-Werke Korber & Co. KG. A ring of laser perforations is provided around the periphery of the cigarette about 13 mm from the extreme mouth end thereof. The perforations penetrate through the tipping paper and plug wrap, and are provided using a laser perforator from Hauni-Werke Korber & Co. KG. Each perforated cigarette is about 32 percent air diluted.

**[0201]** The cigarette having about 12 percent glycerin incorporated into the blend is smoked under FTC smoking conditions. The weight of the blend within the smokable rod of that cigarette is about 680 mg. The cigarette yields about 9.3 puffs, and about 18.5 mg wet total particulate matter. The cigarette yields about 13.9 mg "tar," about 1.20 mg nicotine, and about 10.8 mg carbon monoxide. About 3.5 mg of the wet total particulate matter consists of water, and about 4.94 mg of the wet total particulate matter consists of glycerin.

#### Claims

1. A smokable rod (20) for a cigarette (10) comprising:

- (a) a lighting end (40) and a mouth end (50);
- (b) an inner portion incorporating a smokable material (70) composed predominantly of tobacco and aerosol forming material; the aerosol forming material in intimate contact with a processed tobacco material that is processed such that at least a portion of a solvent soluble portion of the tobacco material is removed therefrom and such that the processed tobacco material is a substrate for the aerosol forming material; and
- (c) an outer wrapping material (60) circumscribing the inner portion.

2. A smokable rod (20) for a cigarette (10) comprising:

- (a) a lighting end (40) and a mouth end (50);
- (b) a longitudinally extending core portion incorporating a smokable material (80);
- (c) a longitudinally extending outer portion circumscribing the core portion in an annular manner, the outer portion being physically separate from the core portion and incorporating a smokable material (70); wherein the smokable material of one of said core portion and said outer portion is composed predominantly of tobacco and the smokable material of the other of said core portion and said outer portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material; and
- (d) an outer wrapping material (60) circumscribing the outer portion.

3. The rod of Claim 1 having a cylindrical shape, the rod having a longitudinally extending outer surface, the outer wrapping material providing the longitudinally extending outer surface, and the lighting end and mouth end each being open to expose the inner portion.

4. The rod of Claim 2 having a cylindrical shape, the rod having a longitudinally extending outer surface, the outer wrapping material providing the longitudinally extending outer surface, and the lighting end and mouth end each being open to expose the core and outer portions.

5. The rod of Claim 1 or 2 having a mouth end piece attached to the mouth end thereof.

6. The rod of Claim 1 or 2 wherein the aerosol forming material includes glycerin.

7. The rod of Claim 1 or 2 wherein the outer wrapping material is composed of paper.
8. The rod of Claim 1 or 2 wherein the outer wrapping material exhibits an inherent porosity of at least about 15 CORESTA units.
9. The rod of Claim 8 wherein the outer wrapping material exhibits an inherent porosity of at least about 20 CORESTA units.
10. The rod of Claim 1 or 2 wherein essentially all of the smokable tobacco material is composed of tobacco in cut filler form.
11. The rod of Claim 10 wherein at least a portion of the tobacco material is cased and/or top dressed.
12. The rod of Claim 1 or 2 wherein essentially all of the smokable tobacco material is composed of tobacco laminae, processed tobacco, or a blend thereof.
13. The rod of Claim 12 wherein at least a portion of the tobacco material is cased and/or top dressed.
14. The rod of Claim 12 wherein the processed tobacco is composed of essentially all tobacco.
15. The rod of Claim 1 or 2 wherein the aerosol forming material is present within the smokable rod in an amount of at least about 5 percent, based on the dry weight of the tobacco material and aerosol forming material within the smokable rod.
16. The rod of Claim 1 or 2 wherein the aerosol forming material is present within the smokable rod in an amount of at least about 10 percent, based on the dry weight of the tobacco material and aerosol forming material within the smokable rod.
17. The rod of Claim 1 or 2 wherein the aerosol forming material is present within the smokable rod in an amount of at least about 15 percent, based on the dry weight of the tobacco material and aerosol forming material within the smokable rod.
18. The rod of Claim 1 or 2 wherein the aerosol forming material is present within the smokable rod in an amount of at least about 20 percent, based on the dry weight of the tobacco material and aerosol forming material within the smokable rod.
19. The rod of Claim 1 or 2 wherein the aerosol forming material has been applied to at least a portion of the smokable material in the form of a spray.
20. The rod of Claim 1 or 2 wherein a portion of the smokable material further includes a material composed primarily of aerosol forming material.
21. The rod of Claim 2 further comprising a wrapping material for the core portion, said wrapping material physically separating the core portion from the outer portion.
22. The rod of Claim 21 wherein the wrapping material for the core portion is composed of paper.
23. The rod of Claim 21 wherein the wrapping material for the core portion exhibits an inherent porosity of more than about 100 CORESTA units.
24. The rod of Claim 2 wherein the burn suppressing agent comprises at least one salt exogenous to that tobacco material.
25. The rod of Claim 24 wherein the exogenous salt comprises an alkali metal salt of a carboxylic acid.
26. The rod of Claim 2 wherein more than 60 percent by weight of one of said core portion and said outer portion is composed of tobacco material and aerosol forming material.
27. The rod of Claim 2 wherein the outer portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, such that, upon use, the core portion is burned from the lighting end toward the mouth end, and a majority of the outer portion undergoes smolder.
28. The rod of Claim 2 wherein the core portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, such that, upon use, the outer portion is burned from the lighting end toward the mouth end, and a majority of the core portion undergoes smolder.
29. The rod of Claim 2 wherein the outer portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, and wherein the outer portion incorporates processed tobacco, and the processed tobacco is absent of exogenous inorganic filler material.
30. The rod of Claim 2 wherein the core portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, and wherein the core portion incorporates processed tobacco, and the processed tobacco is absent of exogenous inorganic filler material.

31. The rod of Claim 2 wherein the outer portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, and wherein the outer portion incorporates processed tobacco, the processed tobacco being absent of exogenous inorganic filler material, and the processed tobacco being composed of more than 90 percent by weight of tobacco, aerosol forming material, exogenous salt and binder.
32. The rod of Claim 2 wherein the core portion is composed predominantly of (i) tobacco material in intimate contact with a burn suppressing agent and (ii) an aerosol forming material, and wherein the core portion incorporates processed tobacco, the processed tobacco being absent of exogenous inorganic filler material, and the processed tobacco being composed of more than 90 percent by weight of tobacco, aerosol forming material, exogenous salt and binder.
33. The rod of Claim 31 or 32 wherein the aerosol forming material includes glycerin and the binder includes an alginate or guar gum.
34. The rod of Claim 1 wherein the smokable material is in intimate contact with a burn suppressing agent.

#### Patentansprüche

1. Rauchbares Stäbchen (20) für eine Zigarette (10), umfassend:
- (a) ein anzuzündendes Ende (40) und ein mundseitiges Ende (50);
  - (b) einen inneren Bereich enthaltend ein rauchbares Material (70), welches vorwiegend aus Tabak und aerosolbildendem Material besteht; wobei das aerosolbildende Material in innigem Kontakt steht mit einem prozessierten Tabakmaterial, welches so prozessiert ist, dass mindestens ein Teil eines lösemittellöslichen Teils des Tabakmaterials aus ihm entfernt ist und dass das prozessierte Tabakmaterial ein Substrat für das aerosolbildende Material ist; und
  - (c) ein Außenumhüllungsmaterial (60), welches den inneren Bereich umschreibt.
2. Rauchbares Stäbchen (20) für eine Zigarette (10), umfassend:
- (a) ein anzuzündendes Ende (40) und ein mundseitiges Ende (50);
  - (b) einen sich longitudinal erstreckenden Kernbereich enthaltend ein rauchbares Material (80);
  - (c) einen sich longitudinal erstreckenden äußeren Bereich, welcher den Kernbereich auf ringförmige Weise umschreibt, wobei der äußere

Bereich von dem Kernbereich körperlich getrennt ist und ein rauchbares Material (70) enthält, wobei das rauchbare Material eines der Bereiche, welche sind Kernbereich und äußerer Bereich, vorwiegend aus Tabak besteht und das rauchbare Material des jeweils anderen der Bereiche, welche sind Kernbereich und äußerer Bereich, vorwiegend besteht aus (i) Tabakmaterial in innigem Kontakt mit einem brandunterdrückenden Agens und (ii) einem aerosolbildenden Material; und

(d) ein Außenumhüllungsmaterial (60), welches den äußeren Bereich umschreibt.

3. Stäbchen nach Anspruch 1 mit einer zylindrischen Gestalt, wobei das Stäbchen eine sich longitudinal erstreckende Außenoberfläche aufweist, wobei das Außenumhüllungsmaterial die sich longitudinal erstreckende Außenoberfläche stellt, und wobei das anzuzündende Ende und das mundseitige Ende jeweils offen sind, um den inneren Bereich zu exponieren.
4. Stäbchen nach Anspruch 2 mit einer zylindrischen Gestalt, wobei das Stäbchen eine sich longitudinal erstreckende Außenoberfläche aufweist, wobei das Außenumhüllungsmaterial die sich longitudinal erstreckende Außenoberfläche stellt, und wobei das anzuzündende Ende und das mundseitige Ende jeweils offen sind, um den Kernbereich und den äußeren Bereich zu exponieren.
5. Stäbchen nach Anspruch 1 oder 2 mit einem seinem mundseitigen Ende anhaftenden Mundendstück.
6. Stäbchen nach Anspruch 1 oder 2, wobei das aerosolbildende Material Glycerin umfasst.
7. Stäbchen nach Anspruch 1 oder 2, wobei das Außenumhüllungsmaterial aus Papier besteht.
8. Stäbchen nach Anspruch 1 oder 2, wobei das Außenumhüllungsmaterial eine inhärente Porosität von mindestens circa 15 CORESTA-Einheiten zeigt.
9. Stäbchen nach Anspruch 8, wobei das Außenumhüllungsmaterial eine inhärente Porosität von mindestens circa 20 CORESTA-Einheiten zeigt.
10. Stäbchen nach Anspruch 1 oder 2, wobei im Wesentlichen das gesamte rauchbare Tabakmaterial aus Tabak in Form von geschnittenem Füller besteht.
11. Stäbchen nach Anspruch 10, wobei mindestens ein Teil des Tabakmaterials einem Casing und/oder Top-Dressing unterworfen wird.